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ABSTRACT

The paper, nearly half of which consists of appendixes, reports on a national survey investigating the relationship of individualized instruction for handicapped and gifted students to their placement, and the extent to which geographical area affects their placement and instruction. The literature is reviewed, focusing on legislation and mainstreaming service delivery models. Eight areas of exceptionality are considered: learning disabilities, emotional disturbances, mental retardation, giftedness, speech handicaps, and visual impairment. Significant relationships were found between all possible combinations of the four variables (placement, geographical area, instruction, and type of exceptionality), with the exception of type of exceptionality with geographical region. Among the results it was also revealed that placement in the least restrictive educational environment was not a good predictor of individualized instruction, but that placement in the most restrictive environment was. Appendixes include survey questionnaires and data in tabular form. (DLS)

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The Relationship of Individualized Instruction to the Placement of Exceptional Children: A Geographically Comparative Study

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THE RELATIONSHIP OF INDIVIDUALIZED INSTRUCTION TO THE PLACEMENT OF EXCEPTIONAL CHILDREN: A GEOGRAPHICALLY COMPARATIVE STUDY

Introduction

Recent studies in special education have indicated the individualized nature of instruction for exceptional children. This individualistic nature is the product of prior relevant federal legislation within the context of present delivery systems. The tenability of this legislation is questionable. There are critics who say that this movement in special education is political not evidentiary (MacMillan and Semmel, 1977).

Probably the most widely cited definition of mainstreaming is that offered by Kaufman, Gottlieb, Agard, and Kukic (1975):

> Mainstreaming refers to the temporal, instructional, and social integration of eligible exceptional children with normal peers. It is based on an ongoing individually determined educational needs assessment requiring clarification of responsibility for coordinated planning and programming by regular and special education administrative, instructional, and support personnel (pp. 40-41).

This definition contains three major components: integration, educational planning and programming, and clarification of responsibility. MacMillan and Semmel (1977) maintain that if all three elements must be present then no program to date constitutes mainstreaming.

The trend away from special classes closely parallels the civil rights cases pertaining to racial desegregation (MacMillan and Semmel, 1977). Sentiment by special educators against the special class was given impetus by Dunn's (1968) influential paper. Yet change did not come from within the system, it came from without. Educators actually encouraged organizations to bring suits against them (see Burt's analysis of the P.A.R.C. case, 1975).

Cohen and DeYoung (1973) listed five major arguments often used in special cases: (a) tests used to measure intelligence are inappropriate; (b) testers are often unfamiliar with the cultural background and language of the child; (c) parents are not involved in the placement process; (d) the special class fails to develop appropriate vocational and educational skills; and (e) placement and labeling can do irreparable harm.

These five allegations are repeatedly used in court cases while evidence to support them is missing on four of the points. Reviews by Cleary, Humphreys, Kendrick, and Wesman (1975) regarding appropriateness of tests; Sattler (1973) and Meyers, Sundstrom, and Yoshida (1974) regarding "incompetent" test administration; those of Guskin and Spicker (1968) and MacMillan (1971) on the adequacy of the special class; and the review of MacMillan, Jones, and Aloi (1974) pertaining to the effects of labeling and placement consider the research evidence on the various allegations and serve to challenge their validity.

From a research perspective with the exception of parental involvement these allegations made in court cases have not been answered (MacMillan and Semmel, 1977). So again the question arises, "Is the move away from special classes toward mainstreaming political or evidentiary?" These authors contend that legal decisions were made on the basis of the law not substantiated evidence.

In the earliest right-to-education cases, Pennsylvania Association for Retarded Children (PARC) v. Pennsylvania and Mills v. D. C. Board of Education an initial issue for the due process consideration was parental ignorance of a child's right to an education (Turnbull and Turnbull, 1978).

In the mid-70's, Public Law (PL) 94-142, the Education for All Handicapped Children Act of 1975, was enacted at the national level. This marked the culmination of an effort to return handicapped learners to the regular class and although there will be obstacles ahead (MacMillan, Jones, and Meyers, 1976), the whether to mainstream is no longer moot. The question is now how.

A key issue to the mainstreaming process is the instructional program for the exceptional child and the educational environment in thich this program is implemented. PL 94-142 mandates individualized instruction in the least restrictive educational environment. The goal of this study was to explore predictors of instruction between the least restrictive educational environment and the most restrictive educational environment. The key question is: "Is individualized instruction for exceptional children a function of placement in the least restrictive educational environment?"

Purpose of the Study

The purpose of this study was to determine the differences between individualized instruction for exceptional learners and placement in the least restrictive educational environment.

Limitations of the Study

One limitation of the study was that the sample consisted of school districts identified by their State Departments of Education as having implemented some type of mainstreaming program. Generalizations would have to be limited to this type of district.

A second limitation was that the sample taken represented many geographic locations. However, over 50% represent the Southeast and Southwest portions of the United States. Generalizations may not be applicable to other geographic areas.

Significance of the Study

This study was designed to investigate characteristics of instruction across eight categorical areas of exceptionality in regard to placement. Specific relationships between instruction and placement was examined. Educators are creating programs that are more individualized, gearing them more adaptable to special students. PL 94-142 has mandated such a tactic, but it is questionable that our delivery systems are adequate to cause a fait accompli. This study only presents the status of the mainstreaming process but raises questions as to the feasibility of the present delivery systems.

REVIEW OF LITERATURE

A brief review of the literature relating historical perspectives to present delivery systems and future programs is presented in this section.

Federal Legislation in Special Education

The federal government has supported American education for more years than we have lived with our present constitution. The Northwest Ordinance of 1785, passed by the Continental Congress, provided the first national aid to education. The act set aside large tracts of federal land in the Northwest Territory for the building of schools or for support of education.

The last two hundred years have seen hundreds of federal laws dealing with education. The shape and pattern of the federal role has grown and changed (Bailey and Mosher, 1968), but four features have remained characteristic of federal education programs:

1. They have been designed to aid or supplement state and local efforts.

2. They have served a particular national purpose as perceived by Congress.

3. Federal aid for programs have provided a small share of the total cost of education.

4. Federal programs have demonstrated a capacity to survive long after the original need for their inception has passed.

History has exhibited a definite trend by Congress to serve a particular national purpose by categorical programs of grants-in-aid (Trudeau, 1971). In 1965, Congress felt it must intervene with the process of public education to provide equality of educational opportunity for children from low income families, and improvement of all education through experimentation and innovation. This legislation came in the form of the Elementary and Secondary Education Act (ESEA). Federal aid jumped from 3.8 percent of public school revenue to 7.9 percent during the school year 1964-65. This step by Congress may have been the step beyond return in public school influence.

Federal legislation affecting the handicapped began as early as 1931 when the section on Exceptional Children and Youth was established in the U.S. Office of Education. This laid the ground work for the establishment of the Division of Handicapped Children and Youth, and the Bureau of Education for the Handicapped. Listed below is a brief recapitulation of major legislation affecting the handicapped persons and programs of this nation.

Public Law 83-531 (1954): The Cooperative Research Act. This act authorized cooperative research in education, by providing grants to institutions of higher learning and to the states. In 1957, the act was funded and of the one million dollars appropriated, $675,000 was earmarked for research related to education of the mentally retarded. This act was the beginning of categorical assistance for the support of a specific handicapping condition.

Public Law 85-926 (1958). This act provided grants to states and to institutions of higher learning to train professionals who would, in turn train teachers of the mentally retarded.

Public Law 88-164 (1963). This legislation was signed into law by President John F. Kennedy, a strong personal supporter of special education for the handicapped. Many special educators considered this to be the strongest and most supportive legislation ever signed into law. There were a number of side effects of PL 88-164, but possibly the most important was the establishment of the Division of Handicapped Children and Youth. This division was established by the President, not the law, and was designed to administer all existing programs for the handicapped and the new ones included in this law. Dr. Samuel Kirk was chosen by the President to establish this division. PL 88-164 was officially called the Mental Retardation Facilities and Community Mental Health Centers Construction Act and included a section which amended PL 85-926 to include Training Professional Personnel in All Recognized Categories of Handicap. Mental Retardation and deafness were the only provisions covered earlier. Another section of PL 88-164 provided for Research and Demonstration Projects in the Education of Handicapped Children.

Public Law 89-10 (1965): The Elementary and Secondary Education Act. This act was not specifically designated for special education. But certain sections of the act were designed to provide better educational opportunities for educationally deprived children. The amount of money a school district would receive was to be directly proportional to the number of low income families in the district. Title I monies could then by definition include those who were disadvantaged due to physical, mental or emotional handicaps. Many school districts initiated new special education programs solely from Title I of PL 89-10. Title V was another section of PL 89-10 and was designed to improve the effectiveness of state education offices. PL 89-10 placed a great demand on the U. S. Office of Education and in an effort to better utilize its personnel much administrative reorganization took place. The result was the disbanding of the Division of Handicapped Children and Youth after only 18 months of existence.

Public Law 89-313 (1965). PL 89-10 was established to channel funds to local educational agencies, but in doing so bypassed those schools and programs funded directly by the state. A great many handicapped children were thus excluded. Congress passed PL 89-313, the Aid for Education of Handicapped Children in State Operated Institutions Act to assist all handicapped and educationally disadvantaged children.

Public Law 89-750 (1966). This act added Title VI to the Elementary and Secondary Act. Initially ESEA provided money to local school districts, but Congress felt not enough of the money was being used thus Title VI was created to provide a great deal of money directly to the states, to initiate, expand and improve programs for handicapped children. A second section of this act called for the establishment of a National Advisory Committee on Handicapped Children. A third section of this act directed the establishment of a Bureau of Education for the Handicapped (BEH).

Public Law 90-247 (1967). Amendments to the Elementary and Secondary Education Act passed in December, 1967, covered many of the concerns voiced by special educators regarding ESEA and its earlier amendments. Eight major categories summarize gains provided by PL 90-247.

1. Regional Resource Centers were established across the nation to assist teachers to develop more meaningful education programs for handicapped children.

2. A Recruitment and Information Section supplied for development of programs by bringing additional personnel into special education.

3. Regional Deaf Blind Centers provided diagnostic and educational services to children, also consultative services to parents and teachers across the nation.

4. A specific Research and Demonstration Provision was an expansion of earlier research authority, and included authority to support training of research personnel in special education.

5. Title I of ESEA was amended to provide support for handicapped children in state operated schools.

6. Title III of ESEA, a section which supports programs of innovation and expansion of existing frontiers of knowledge was amended to provide 15 percent earmarking of funds for programs for the handicapped.

7. Media Program Services were expanded to include provision for all handicapping conditions. This section provided for acquisition, production and distribution of media.

8. Title VI was amended to include grants to federal schools, including schools operated by the Bureau of Indian Affairs.

Public Law 90-538 (1968): The Handicapped Children's Early Education Assistance Act. This act had two major accomplishments:

1. It provided for research in the field of education of the pre-school handicapped child.

2. It was the first time in federal legislative history that Congress had passed a bill which was exclusively for the education of all the handicapped without attaching it to other legislation.

Public Law 91-230 (1969): The Education of the Handicapped Act. This act served to amalgamate all existing legislation into one package and extended and enlarged a number of existing programs. PL 91-230 contained two delineations that need special mention.

1. Special Programs for Children with Specific Learning Disabilities incorporated the features of a separator bill for children with Learning Disabilities as Part G of Title VI of PL 91-230, which authorized research, teacher training, and model centers to serve children with learning disabilities. It also defined this area of handicap.

2. A Gifted and Talented Children Educational Assistance Act had been proposed to the 91st Congress. When it looked as though it would not pass it was added to PL 91-230 almost exactly as it was proposed. This act was mainly for the purpose of investigating and reporting to the Congress as to what further congressional action should be taken in educating the gifted. Efforts on behalf of the gifted were finally implemented through establishment, in 1972, of an Office of Gifted and Talented Education, which was attached to BEH for administrative purposes. Programs for the gifted had up until the establishment of an Office of Gifted and Talented, been provided as a means to save the nation in time of emergency or for national welfare, rather than the principle that gifted and talented youth may need special assistance to permit fulfillment of their individual aspirations.

Public Law 93-380 (1974). This law is an amendment of the Handicapped Act. PL 93-380 provides for: (a) full educational opportunities to all handicapped children with a timetable for accomplishing this goal, (b) a description of the kind and number of facilities, personnel, and services necessary; (c) prior notice must be given to parents or guardians when the educational placement is to be changed; (d) an opportunity for parents and guardians to obtain an impartial due process hearing when educational placement is to be changed, (e) testing

and evaluation materials and procedures utilized for the purposes of classification and placement cannot be racially or culturally discriminatory; (f) data and information received from testing and evaluation will be confidential; (g) states must find all the children residing in the state who are handicapped and in need of special education, with priority given to those who are not receiving an education; (h) handicapped children must be educated in the least restrictive alternative; and (i) parents and the general public will have available to them any amendments to this Act at least 30 days prior to submission to the Office of Education. The major drawback of this piece of legislation is that the U. S. Congress failed to address itself to the resources required to implement the adopted programs and mandates. The appropriation necessary to implement these mandates was estimated to be two-thirds of a billion dollars. The final supplemental appropriation contained $1,000,000 or less than 20% of the money estimated to be needed to implement the law.

Public Law 94-142 (1975): The Education for All Handicapped Children Act of 1975. Pl 94-142 is a revision of PL 93-380. Under this act handicapped children and their parents or guardians are extended the same rights assured to them in PL 93-380. PL 94-142 assured all handicapped children will have available to them: (a) a free appropriate public education and (b) individualized program for each child appropriate to his or her own unique needs. These programs became effective September 1, 1978 for ages 3 years to 18 years, and will extend to age 21 years by September 1, 1980. The provisions of this act also include: (a) no cost to parents or guardians; (b) the children and parents will have the same rights entitled to them even if the child is placed in a private setting; (c) federal government will assist states and localities to provide for the education of all handicapped children; and (d) the federal government will assess the state plans to assure the effectiveness of their efforts to educate handicapped children.

Implications for the Future

There are many variables that will affect the future of federal aid to education. PL 94-142 should, if carried to the full extent of the law, have rumblings and ramifications that will be heard and felt for years to come. PL 94-142 is not the complete answer to education for the handicapped. There will be amendments to this law and more laws separate from this, but one thing is certain, the federal government has obtained some say as to what and how states run their programs, and Congress at this time does not appear to want to diminish their role.

Delivery Models Available for Mainstreaming

The Individually Guided Education (IGE) Model. This model was originally designed to improve educational services for normal children, but it contains many features that are beneficial to the education of all children (Armstrong, 1976). The IGE system is made up of seven individual components: (a) multiunit organizational-administrative arrangements; (b) instructional programming for the individual student; (c) evaluation for educational decision making; (d) curricular materials compatible with IGE; (e) home-school-community relations; (f) facilitative environments for IGE; and (g) continuing research and development required to improve IGE.

Of particular interest in the IGE model is the multiunit organization schema. It is a three level hierarchy. At the top administrative level is a system wide program committee which would include system wide selected teachers, unit leaders, principals of the participating schools, community representatives, central office personnel, and selected consultants. This committee would usually be chaired by the district superintendent and would be the decision making body for policy, planning, and coordination of activities related to the instructional realization of mainstreaming. At the second administrative level again the principal is included along with the district department head of instructional media, parent representatives, special teachers, and unit leaders again. This committee is known as the Instructional Improvement Committee. It is a linking committee that structures curriculum goals and implements and interprets policies handed down from the top level to the bottom level, i.e., the instruction and research unit, made up of 100-150 students at four levels: (a) 4-6; (b) 6-9; (c) 8-11; and (d) 10-12. The instruction and research unit is comprised of the unit leader, staff teachers, and aides (instructional, clerical, student).

Since the early 1900's when the first special classes were formed in the United States, segregated special classroom environments have been the most often used means for teaching mildly and moderately retarded children. However, within the last ten years special educators have grown discontent with this delivery system and alternative forms have been established. These alternative forms which allow the retention of the mildly involved in the regular classroom with supplemental support is popularly referred to as "mainstreaming" (Chaffin, 1974).

This present emphasis was brought about in part by (a) research on the effectiveness of special classes for the mildly retarded; (b) the recognition that many diagnostic instruments were culturally biased; (c) the debilitating affects of "labeling;" and (d) recent court litigation protecting the rights of handicapped students.

Chaffin critiques four models of delivery systems for mainstreaming: (a) Deno's Cascade of Services; (b) Lilly - A Training Based Model; (c) Gallagher's Contract Model; and (d) Adamson's and Van Etten's Fail-Save Model.

Deno's Cascade of Services. Deno (1970) states that education needs to be an instrument which can facilitate change. She compares special education to a research-and-development area in industry, whose function it is to develop new ideas for implementing services for special students. She delineates seven levels of services which she calls a cascade. Levels I-VI are within school district placements, Level VII is placement in a facility outside the school district governed by health or welfare agencies. The seven levels are (a) Level I - full-time regular class placement with no supportive services; (b) Level II - full-time regular class placement with supplemental services; (c) Level III - part-time special class; (d) Level IV - full-time special class; (e) Level V - special stations; (f) Level VI - homebound; and (g) Level VII - instruction in hospital or domicile setting or "noneducational" service (medical and welfare care and supervision).

Deno's emphasis is that this model is tailored to the individual student's needs by providing a broad spectrum of delivery systems. This would preclude placement based on standards of group rather than individual cases.

Lilly's Training Based Model. Lilly (1970) takes the approach that the emphasis should be on the educational system not the child. Lilly's Training Based Model must meet several criteria: (a) the model must be a zero-reject system, i.e., the responsibility for failure is placed on the teacher not the student; (b) the responsibility for "ironing out" difficult classroom situations rests with the regular classroom teacher with special education playing a supporting role; and (c) the goal of the special educator is to help the regular classroom teacher to develop skills so that they no longer need special education support.

The Special Education Contract Model. This model, prepared by Gallagher (1972), was aimed at serving mildly retarded disturbed, or learning disabled primary-age children. This would involve a signed formal contract between parents and school officials prior to the placement of a child in a special education class. The contract would specify special goals to

be attained and would cover a period no longer than two years (very similar to the Individual Education Plan required by PL 94-142). Gallagher states he had two purposes for designing this model. One was to address the problem of perpetuating students in special education classes and the other was to prevent the overplacement of minority groups in special education classes.

The Fail-Save Model. The fail-save model (Adamson and Van Etten, 1972) was published as a response to Lilly's Training Based Model. Their main complaint was that Lilly's model did not provide enough options. Their proposal essentially expands Lilly's model by providing more alternatives. The "fail" refers to the failure of the system to meet the needs of the student by adapting the system to meet the needs of the special student. A ten week observation period is made after the referral from a regular classroom teacher. At the completion of the cycle a conference is held to determine future action. It is attended by the parents, teachers, administrators, and the methods and materials person who did the observing. If special placement is made it is for a 90 day trial period in a resource room. Another evaluation is made in 90 days. If the child is to remain in special placement (resource room) it will be for a maximum of nine months. Following an evaluation to the student's progress at this level of placement the child may be retained at this level or referred for special class placement. If the later decision is made the student will automatically be returned to the resource room after two years.

The four models described are all aimed at improving the delivery system for exceptional learners. Deno's cascade of services are usually present in some form in most school districts. The inservice role of the special educator as described by Lilly is also common. Gallagher's contract proposal is used also but usually not with the formality Gallagher would like.

Chaffin concludes that on the basis of the material he reviewed that it is too early for the real mainstreaming program to stand up and be counted. There is not enough data present to substantiate that one model is superior to another.

The Crisis Teacher Model. The crisis teacher concept was developed by a staff of elementary teachers who desperately needed assistance in their classes for students with socio-emotional problems (Morse, 1976). The proposal of a separate class for emotionally disturbed students was quickly rejected because the removal of the problems would not make a dent in the overall problems. Also, many of these students did not cause problems 100% of the time. These teachers delineated

three aspects of the group setting that was conducive to learning for disturbed children: (a) even though learning is individual it occurs more naturally in a social setting; (b) students learn from their peers; and (c) there are some things that cannot be learned without social intercourse. In the beginning the crisis teacher was not licensed to work with emotionally disturbed children, but was an exceptional regular classroom teacher who exhibited an affinity for common sense and flexibility to handle abnormal situations.

The basic intervention tool for dealing with the affective problems was Life Space Interviewing (Long, Morse, and Newman, 1976). There has been little research to date on the efficacy of the crisis teacher model. One obvious reason is that it is difficult to isolate one function with a child's total life milieu. This has always been an obstacle with mental health research. After a year or more in the crisis teacher program the regular classroom teachers consistently rated progress higher in social adjustment than in school achievement.

During the past ten years pressure has been put on the public schools to serve the emotionally disturbed child. In many instances what has been done has been to isolate problem children in a special class (Grosenick, 1971). Although the objective is to return these children to the regular classroom as soon as possible there is little information available regarding the process involved in doing this. Haring and Phillips (1962) suggest that the process should be a gradual one, meaning that when the student returns to the regular classroom it should only be for part of the day. Others (Haan, 1957), maintain the process must involve a multidisciplinary team.

One method for determining the extent of rehabilitation is offered by behavior management techniques to specify the amount of behavior that occurs inappropriately (Lovitt, 1970). Unless one knows exactly what the student's status is, the period of rehabilitation can be too long or too short.

Grosenick reports on a study done to evaluate the integration process. Recordings were made of social and academic behavior of disturbed children to determine their readiness to return to the regular classroom. In general, the conclusions were that the accurate measurement of performance and behavior is an effective means to measure the readiness to move from one environment to another. An additional consideration was what classrooms should the students be moved to. Three prime factors were considered: (a) the cooperative attitude of the regular classroom teacher; (b) the personality of the regular classroom teacher; and (c) the specific academic needs of the child.

As yet there is little empirical evidence supporting the movement of mainstreaming (Clark, 1975). Furthermore, it is not appropriate for all handicapped children, only some. This particular research is directed toward the secondary mildly to moderately retarded. Clark notes that Dunn's (1968) research purposely excluded this group. One issue, of course, is whether regular secondary programs are as well suited for integration as are elementary programs. It is the opinion of these researchers that secondary administrators are more inflexible to change. Another issue to be dealt with is whether the regular classroom is the best alternative delivery system to these handicapped learners. Clark concludes that the transition to adulthood experiences is ordinately more imminent for retarded children. He rejects the assumption that all students should have the educational experiences. A third issue discussed was whether or not proponents of mainstreaming were giving adequate attention to curriculum need. Workstudy programs have proved to be more valuable than watered down academic programs.

Clark concludes that mainstreaming as the only option for secondary retarded children is a poor and questionable choice for the following reasons: (a) there is no empirical evidence to support it; (b) the curriculum does not support the students real needs; (c) regular class programs at the secondary level were never intended to accommodate the educable mentally handicapped; (d) career education programs have not been adequately established; (e) support personnel for vocational education programs are not available; and (f) the inflexibility of secondary administrators is not conducive for success.

Philosophically mainstreaming means the valuing of human differences. It means that heterogeneous grouping is more valuable than homogeneous grouping as a learning environment. Programmatically it is a continuum of services which offers each student the possibility of learning with everyone else as much as possible (Berry, 1974)

Berry lists three basic ways to implement mainstreaming: (a) simply return them to the regular class; (b) have special educators identify needs and delineate appropriate programs; and (c) have regular educators become leaders in individualization. Berry prefers the third approach. He rejects the multidisciplinary team as an effort not really needed.

Regarding the mainstreaming organization Berry foresees the regular classroom becoming an approximation of the resource room individualization of instruction. There is no one best organization plan but the Madison Plan (Hewett and Watson, 1975) and the Fail-Save Model (Adamson and Van Etten, 1972) are well-suited. The important aspect is that the plan is generated by the entire school staff.

Implications for the Future

Question is raised by MacMillan and Semmell (1977) as to the basis for the court decisions that led to mainstreaming and the need for sophisticated evaluation data pertaining to the educational state of children. Kirk (1964) observed that the meaning of "special class" varied from study to study thereby making comparison of results hazardous. Hopefully, in the future delivery systems will become more standardized and terminology will become less nebulous. However, today program diversity is the rule not the exception (Guerin and Szatlocky, 1974; Jones, 1976a).

In short, all children in the schools are going to be affected by mainstreaming. Until the objectives of mainstreaming are explicit, it is impossible to specify the outcomes to be considered and select instruments and procedures with which to assess those outcomes. For example, if mildly retarded children are mainstreamed, some direct services will have to be provided in order for them to function adequately. Thorne (1975) makes this observation on the normalization procedure:

> . . .the normalization principle ignores the fact that by definition the retarded do not develop normally in response to normative procedures. For individuals to be correctly designated retarded means retarded only after normative procedures have been tried and found wanting. Referring to someone as retarded except in response to failure of normative procedures is non sequitur. While specialized procedures may or may not succeed in helping the retarded to become more normal, they always are the prescription of choice over normative procedures if more normal lives for the retarded are indeed the ends sought (p. 23).

Surely, then it does not follow to remediate educational deficits with the same instructional techniques that failed before special classes were created. Specialized techniques are called for and will hopefully serve to assist the handicapped learner to his fullest educational attainment and as a result be able to perform in the mainstream of education and life.

Administrative perspectives of mainstreaming should be noted. MacMillan (1976) and MacMillan et al. (1976) report that adminsitrators concerns are to avoid: court cases against special classes; the overrepresentation of ethnic minority children in those classes; and the exhorbitant costs of special programs. MacMillan et al. (1976) report a diversity of responses on how to evaluate mainstreaming programs depending on the role of the person responding.

Administrators may consider a program "good" if it is cost effective and avoids lawsuits, but a classroom teacher may consider the same program "poor" because the inclusion of handicapped learners both increases the behavior problems in class and makes instruction more difficult. Keogh and Levitt (1976) have noted this phenomenon:

> It is of some interest to note that, from our ongoing contacts with public school personnel, it is apparent that the closer one is to the actual operation of programs, the less certainty there is about mainstreaming. Legislators and state or district administrators are enthusiastic advocates, building principals are for the most part positive, and classroom teachers are frequently ambivalent (p. 8).

The literature does not warrant optimism regarding the social plight of the handicapped when they are integrated (Gottlieb, 1975).

METHODOLOGY

This study has focused on the difference in individualized instruction for exceptional children and placement in the least restrictive educational environment. Specific relationships were studied in all eight areas of exceptionality: (a) the learning disabled; (b) the emotionally disturbed; (c) the mentally retarded; (d) the gifted; (e) the speech handicapped; (f) the physically handicapped; (g) the auditorily impaired; and (h) the visually impaired. In addition, analyses were made to determine if there are significant differences in the way exceptional children are labeled, placed, and instructed among five geographical areas of the United States.

Subjects for the Study

There are five samples in the study. Three hundred one (N301) school districts who had been identified by State Departments of Education as having implemented some type of mainstreaming program for exceptional learners were asked to respond to a questionnaire. The questionnaire was designed to (a) identify the definition of mainstreaming that the school district was using; (b) assess the types of instructional approaches being used for exceptional learners; (c) assess the administrative approaches being utilized for each categorical type of exceptional learner; and (d) assess the type of inservice training relative to exceptional education that was being utilized within the school district. Two hundred twelve (N212: 70%) questionnaires were completed sufficiently to utilize the data from either all or specific sections. These responses represented 45 different states plus the District of Columbia. The responses were tabulated and recorded in five geographical areas of the United States (see Figure 1).

Area 1

Connecticut
Delaware
Maine
Maryland
Massachusetts
New Hampshire
New York
Ohio
Pennsylvania
Rhode Island
Vermont
Washington, D.C.

Area 2

Alabama
Florida
Georgia
Kentucky
Mississippi
North Carolina
South Carolina
Tennessee
Virginia
West Virginia

Area 3

Arkansas
Illinois
Indiana
Iowa
Michigan
Minnesota
Missouri
Wisconsin

Area 4

Colorado
Kansas
Louisiana
Nebraska
New Mexico
North Dakota
Oklahoma
South Dakota
Texas
Wyoming

Area 5

Alaska
Arizona
California
Hawaii
Idaho
Montana
Nevada
Oregon
Utah
Washington

Figure 1. Geographical Areas of the United States.

Instrument Used

The subjects were asked to respond to a questionnaire designed by the authors (see Appendix A). The spectrum of administrative placement alternatives were adopted from Deno's Cascade of Services Model (Deno, 1970). The key phrase that Deno's model emphasizes is the "ability to facility change." Deno presents seven alternatives for placement of the exceptional children. The questionnaire only includes six because her seventh alternative is placement in a facility outside the school district governed by health or welfare agencies. This model is tailored to the individual needs of the student by providing a broad spectrum of delivery systems.

Statistical Design

The analysis of the data were performed in three stages. In the first stage a contingency table analysis was used to cross-tabulate instructional approaches and administrative approaches. The contingency table displays data in frequency groupings across categories or variables. These groupings summarize all the data and illustrate possible trends (see Appendix B).

In the second stage of analysis a chi square test was run to test the level of significance for the sampling distribution. The purpose of this procedure was to determine whether the difference between expected and obtained frequencies were within the bounds of random sampling variation. The null hypothesis may be tested by the chi square formula:

$$x^2 = \sum_{i=1}^{r} \sum_{j=1}^{k} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

which was performed to verify that the obtained distribution of types were significantly different from the expected one.

The x^2 test requires that the expected frequencies (E_{ij}'s) in each cell should not be too small. Cochran (1954) recommends that for x^2 tests with df$>$1 (k or r $>$2), fewer than 20% of the cells should have an expected frequency of $<$5, and no cell should have an expected frequency of $<$1. Cochran states that if $E_{ij}<5$ or <10 then on occasion their application may result in a substantial loss of power. However, Sukhatme (1938), Newman, and Pearson (1931); Cochran (1936, 1942), have reported results that indicated that the x^2 tables give an adequate approximation to the exact distribution even when some E_{ij}'s are much lower than 5.

Loss of power from following a rule that $E_{ij} > 5$ occurs because this rule tends to require grouping of classes at the tails or extremes of the distribution. These are often the places where the difference between the alternative hypothesis and the null hypothesis stands out most clearly, so that the grouping may cover up the most marked difference between the two hypotheses. If x^2 has less 30 degrees of freedom and the minimum expectation is > 2, use of ordinary x^2 tables is usually adequate (Freeman and Halton, 1951).

In the third stage of analysis the cells that have the greatest shared variance in the significant chi square tests will be rank ordered. This method of displaying the data will enable the researcher to pinpoint specific rows and columns on the chi square matrices that are accounting for the most significant difference between the observed and expected frequencies.

RESULTS

The results of the chi square tests indicate that there are significant relationships between all possible combinations of variables with the exception of geographical area and categorical type of exceptionality. There was no significant difference in the manner of labeling exceptional children among the five geographical areas of the United States. The matrices of observed and expected responses of the various chi square tests of independence are represented in Tables 1-6 (see Appendix B). Illustrated below is a summary of these tests.

Table	Variable Combination	df	x^2	critical value at .05 level
1	placement-categorical type	35	306.69	49.77
2	placement-geographical area	20	93.25	31.41
3	placement-instruction	15	67.96	24.99
4	geographical area-instruction	12	40.58	21.03
5	categorical type-instruction	21	136.15	32.67
6	categorical type-geographical area	28	17.11	41.34

Figure 2. Summary of Chi Square Tests of Independence

Instruction was the dependent variable on Tables 3, 4, and 5. Therefore, based on the data placement, categorical type of exceptionality, and geographical area are significant predictors of the type of individualized instruction an exceptional child receives. Placement was the dependent variable on Tables 1 and 2.

Categorical type of exceptionality and geographical area are significant predictors of where on the spectrum of placement in the least restrictive environment the exceptional child lands.

Generalizations are made on several of the chi square tests concerning the cells that have accounted for the greatest amount of shared variance (see Appendix C). For example, on Table 1 (placement-categorical type) nearly twenty percent (18.22) of the total shared variance is accounted for by the variability in the placement of speech handicapped children. While the majority (61%) of speech handicapped children were serviced in a resource room, a substantial percentage (23%) were serviced by an itinerant teacher in the regular classroom.

An analysis of Table 2 (placement option-geographical area) indicates that geographical area one, the Northeast area of the United States, accounts for 57% of the shared variance selection of placement options for exceptional children. The resource room placement, by far the most popular selection for the total study (40%), was only chosen 9.9% of the time by the respondents from the Northeast area. The Northeast area respondents chose a self-contained class with flexible integration (29.7%) and the itinerant resource teacher (21.78%) as more viable delivery systems for exceptional learners.

Table 3 (placement option-instructional approach) reveals that the individualized instruction seems to be most prevalent when administered in the setting of the resource room (54.37% of the respondents chose the most individualized approach of instruction as the one most often used across all categories of exceptionality). It is interesting to note that the next two most popular placements where the most individualized approach was used are placement options one and two (14.83% and 12.17% respectively) which are at the traditional end of the spectrum, i.e., self-contained special education classes. The more progressive placements - itinerant resource teacher, consulting resource teacher, and regular class placement - only show percentages of 8.75, 6.46, and 3.42 respectively in the most individualized approach row. One could conclude from the grouping of the data that individualized instruction is more prevalent for exceptional children in the more restrictive educational environments.

Table 4 (geographical area-instruction) also indicates dependence of instruction on yet another variable - the geographical area of the United States the exceptional child lives. Thirty-six and fifty-two hundredth percent (36.52%) of the shared variance is accounted for by the Northeast area of the United States. Since this area only accounted for 11.79%

of the questionnaires received the above variance appears significant. This combined with the information from Table 1 leads one to conclude that on this particular survey the responses to the placement and instructional options by the districts represented by the Northeast United States are significantly different from those of the other four areas.

Table 5 (categorical type of exceptionality-instructional approach) reveals data that is paradoxical in nature. The most often selected instructional approach (option one - same materials, same instruction) was also the least individualized but accounted for 35.99% of all responses. It was closely followed by option four (different materials, different instruction) which was the most individualized approach and accounted for 32.75% of all responses. Options two and three were 21.05% and 10.21% respectively. Individualized instruction appears to be a sporadic element of an exceptional child's curriculum. It should be noted that the categorical groups of the learning disabled (LD) and the mentally retarded (MR) received the most individualized instruction according to this survey. The LD students received the most individualized approach on 45.45% of all responses to that categorical type and the MR students received the most individualized approach on 43.70% of the questionnaires analyzed. The emotionally disturbed, speech handicapped and physically handicapped had the lowest percentages of individualized instruction - 24.75, 27.03, and 21.21 respectively. This is more understandable in the case of the later two but does not follow for the emotionally disturbed child.

Table 6 (categorical type-geographical area) was the only combination of variables that was not significant at the .05 level on the chi square test of independence. According to this survey there is no significant difference in the way exceptional children are labeled among the five geographical areas of the United States.

In summary, four discrete variables have been examined in survey form to determine if there are significant relationships among these variables that affect the individualization of instruction an exceptional child receives in the least restrictive educational environment. Furthermore, it was studied to see if geographical area affected placement and instruction. Assumptions were made that instruction is dependent on class placement and class placement is dependent upon categorical type of exceptionality and geographical region. Significant relationships were found between all possible combinations with the exception of categorical type of exceptionality and geographical region.

The data reveal that placement in the least restrictive educational environment is not a good predictor of individualized instruction, but conversely placement in the most restrictive educational environment is a good predictor of individualized instruction. Therefore, PL 94-142 presents a paradox in relationship to the results of this survey. The law has mandated that an individualized educational plan be written for each exceptional child and that child is to receive the instruction from that plan in the least restrictive educational environment. First, the data reveal that most exceptional children are placed toward the traditional end of the class spectrum - the self-contained special class. Secondly, even though a majority of placements are in special classes, instruction is not individualized in well over half the districts surveyed. There is adequate data to speculate that special education delivery systems are inadequate in most districts surveyed in 1976 to affect the criterion prescribed by PL 94-142.

Summary and Discussion

Placement of exceptional children in a public school setting has been both an educational and an emotional problem for administrators duly appointed to carry out this responsibility. In the past this process varied greatly from district to district. Some states have taken a greater share of the responsibility than others and have attempted to affect uniformity in its dealings with an exceptional child and his parents. In 1975 the federal government figuratively "crossed the Rubicon" in the mainstreaming controversy that has surrounded special education for the last decade. The original impetus for this move is difficult to trace, but certainly Dunn's (1968) influential paper was one of the first major rumblings of what was to come.

PL 94-142 has refined the discussion of how to place an exceptional child in a public school setting. An exceptional child is to be educated to the maximum extent possible with his normal peers. This, of course, will vary from child to child depending on the nature and severity of his handicap. It clearly marks the end of a long era of excessive special class placements. The self-contained special education class is an educational solution which should slowly disappear as a common placement. It will be reserved only for those children whose handicaps are so severe and involved that to attempt to educate them with their normal peers would be prohibitive. It should be noted that these children comprise a small proportion of the total public school population in the United States. The majority of handicapped children will be found in the mainstream of American education unless the policies formulated by PL 94-142 are dramatically changed.

To debate the mainstreaming issue in a philosophical or esoteric context at this point is impractical. There is a formidable task of determining how the mandates of PL 94-142 can be affected in the most efficient and prudent manner possible with the needs of the child and this system both being taken into account. Several progressive districts were already in general compliance of the law long before it was acted upon by Congress. Most districts, however, have a great deal of work to do.

Two issues surface immediately in this discussion: (a) first, what is to be done to help the regular classroom teacher to accept and formulate individualized instruction plans for exceptional children; and (b) secondly, what immediate revisions must be made by institutions of higher education to better prepare elementary and secondary education majors for the additional responsibility of teaching some exceptional children for all or part of the day in addition to twenty-five or so "normal" students.

According to this survey, in 1976 the most frequent method for inservice training of regular classroom teachers was option two - short term inservice. Option three - no specific inservice training provided - was the second most frequent choice of the respondents. Short-term inservice is a nebulous phrase and could vary from a few hours to a few days from district to district. Coupled with option three as a second choice, the implications are clear that no in-depth inservice training is being provided for regular classroom teachers. Options one (long-term ongoing, inservice) and four are preferable choices for inservice training. Option four - cooperative arrangement with local university at no expense to the regular class teacher - is relevant to the discussion of the second issue, university training of secondary and elementary education majors.

In 1976 there were only eleven states which required all certified personnel take a survey course in special education. A survey course will only serve to acquaint teachers and administrators with the various types of exceptional children. It will in no way provide the skills necessary to affect diagnostic and prescriptive teaching methods which have proven to be so successful with children who have learning and behavior problems.

The universities must take the leadership role in this area. Curriculums for elementary and secondary education majors should be revised to include at least one course in diagnostic and prescriptive teaching. This course should be made available for regular class teachers already in the

field and the cost should be born by three agencies - the local district, the state government, and the federal government. The financial aspects should not be taken lightly for this is an obvious weakness of the law. Massive changes have been mandated without appropriate funding to affect these changes.

Group instruction has proven to be ineffective in the past with children who have learning and behavior problems. Individualized instruction methods have made great strides in teaching children who before were tabbed as "failures", "drop-outs", "retards", and "dummies". Obviously, the regular class teacher cannot do it without relevant support. The special teacher must closely consult with her regular classroom counterpart particularly on shared "special" children. Teachers aides are helpful to the regular teacher to implement individual plans and to provide the one-to-one contact these children so often need.

The task ahead is monumental, but we are fortunate to live in a political system where the rights of all people are protected under the law. The heart of PL 94-142 represents the essence of the "American Dream" which has survived for two hundred and three years. The essence of the law is a good one. The guidelines for implementation and compliance are weak, but these authors are optimistic for future development and change in both intent and delivery.

Delivery systems must be closely examined. Many models for special class placement are obsolete and new and more efficient ones must be developed. Inservice training programs are going to need a major overhaul. A few hours a year will be insufficient to prepare regular class teachers to individualize their plans for exceptional children. Options one (long-term inservice) and four (university training) on the questionnaire are much more viable and efficient inservice alternatives. A careful analysis needs to be made of curriculum of elementary and secondary education programs at institutions of higher learning. It is the recommendation of this author that a diagnostic-prescriptive teaching component should be a minimal training skill for regular classroom teachers.

The discussion finally focuses on the comment made earlier in the text by MacMillan and Semmel (1977), "Is the move away from special classes toward mainstreaming political or evidentiary?" The survey gives no substantive evidence of mainstreaming. So, the analogy is raised again to the civil rights cases pertaining to racial desegregation. Handicapped children have only until recently (P.A.R.C. Case, 1975) been looked upon as an oppressed minority. Federal courts have for the most

part upheld civil suits claiming discrimination against handicapped children in recent cases. Public school administrators, in order to avoid future lawsuits, should make substantive attempts to be in compliance with the law. This, coupled with responsible leadership from the university community spells out a favorable prognosis for the plight of the handicapped child.

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APPENDIX A

Questionnaire on Mainstreaming

QUESTIONNAIRE ON MAINSTREAMING

Please complete the information requested and return as soon as possible, but prior to December 15, 1976. A return envelope has been provided for your convenience.

1. Provide the definition you are using for mainstreaming.

2. What types of exceptional learners are involved in your mainstreaming program? (Check all types involved.)

A. ___learning disabilities	(___elementary	___secondary)
B. ___emotionally disturbed	(___elementary	___secondary)
C. ___mentally handicapped	(___elementary	___secondary)
D. ___gifted	(___elementary	___secondary)
E. ___speech handicapped	(___elementary	___secondary)
F. ___physically handicapped	(___elementary	___secondary)
G. ___hearing impaired	(___elementary	___secondary)
H. ___visually impaired	(___elementary	___secondary)

3. Listed below are several instructional approaches which are being utilized by school districts. Please check the one instructional approach which most nearly describes how each categorical type of exceptional learner is accomodated for curriculum purposes.

Instructional Approaches	Categorical Types of Exceptional Learners: learning disabilities I	emotionally disturbed II	mentally handicapped III	gifted IV	speech handicapped V	physically handicapped VI	hearing impaired VII	visually impaired VIII
A. mainstreamed child using same materials with the same type of presentation in the regular classroom.								
B. mainstreamed child usig the same materials with a different type of presentation in the regular classroom.								
C. mainstreamed child using different materials with the same type of presentation in the regular classroom.								
D. mainstreamed child using different materials with a different type of presentation in the regular classroom.								

4. Rank order all administrative approaches that are currently being utilized for each categorical type of exceptional learner.

Administrative Approaches	Categorical Types of Exceptional Learners							
	learning disabilities I	emotionally disturbed II	mentally handicapped III	gifted IV	speech handicapped V	physically handicapped VI	hearing impaired VII	visually impaired VIII
A. self-contained based for academic areas but integrated into regular class for physical education, art, music, etc.								
B. self-contained based with flexible reintegration to regular class for any subject area depending on student readiness.								
C. resource room utilized for direct services to the exceptional learner.								
D. consultant to regular class teacher-cooperative planning between regular classroom teacher and special consultant with regular teacher implementing the program.								
E. special teacher (i.e., resource, itinerant, diagnostic-prescriptive) who works directly with the child in the regular classroom setting.								
F. regular classroom teacher provides all direct services to the exceptional learner-includes planning.								

5. How is training provided to regular classroom teachers? (Rank order all that apply.)

A. ____ regular classroom teachers are provided ongoing inservice training in instructional/management strategies appropriate for exceptional learners

B. ____ regular classroom teachers are provided short-term inservice training in instructional/management strategies appropriate for exceptional learners.

C. ____ no specific inservice training is provided

D. ____ school district has cooperative arrangement with local university to provide training to regular classroom teachers in exceptional learner education at no expense to the regular teacher

6. ____ Yes ____ No Does your state require all certified personnel to take a course in Survey of Exceptional Education?

If so, when did the law become effective?_____

We would appreciate receiving any printed materials on your program.

Information provided by: _____
Name

_____
Address

Comments:

APPENDIX B

Chi Square Tests of Independence

Table 1

Chi Square Test of Independence
Between Placement Option and
Categorical Type of Exceptionality

Placement Option

Categorical Type of Exceptionality	a_1	a_2	a_3	a_4	a_5	a_6	N
b_1	n6, 16.42*	n12, 19.68	n83, 43.71*	n5, 10.86	n3, 11.27*	n0, 7.06*	109
b_2	n23, 15.52	n26, 18.60	n33, 41.3	n16, 10.26	n4, 10.65	n1, 6.67*	103
b_3	n56, 17.78	n31, 21.31*	n27, 47.32	n2, 11.76*	n2, 12.19*	n0, 7.64	118
b_4	n5, 9.04	n0, 10.83*	n30, 24.06	n9, 5.98	n5, 6.2	n11, 3.88*	60
b_5	n3, 16.73*	n2, 20.04*	n68, 44.51*	n6, 11.06	n25, 11.47*	n7, 7.19	111
b_6	n10, 14.92	n37, 17.88*	n21, 39.7*	n13, 9.86	n3, 10.23*	n15, 6.41*	99
b_7	n11, 16.27	n25, 19.5	n37, 43.31	n11, 10.76	n17, 11.16	n7, 6.99	108
b_8	n7, 14.92	n12, 17.15	n23, 38.09*	n18, 9.46*	n24, 9.82*	n11, 6.15	95
N	121	145	322	80	83	52	803

$$x^2 = \sum_{i=1}^{r} \sum_{j=1}^{k} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

$x^2 = 306.69$

Critical value of independence at the .05 level for 35df = 49.77

* Denotes significant difference

Table 2

Chi Square Test of Independence
Between Placement Option and
Geographical Area

Placement Option

Geographical Area	a_1	a_2	a_3	a_4	a_5	a_6	N
b_1	n14, 14.79	n30, 19.21*	n10, 40.83*	n22, 9.73*	n18, 10.87*	n7, 6.57	101
b_2	n26, 43.13*	n31, 43.13	n125, 91.66*	n12, 21.88*	n23, 24.40	n11, 14.76	228
b_3	n21, 10.58	n10, 10.58	n24, 29.22	n5, 6.96	n5, 7.78	n7, 4.70	72
b_4	n48, 43.49	n58, 56.51	n119, 120.07	n29, 28.62	n26, 31.97	n19, 19.33	299
b_5	n7, 14.93*	n22, 19.40	n43, 41.23	n9, 9.84	n14, 10.98	n8, 6.64	103
N	116	151	321	77	86	52	803

$$x^2 = \sum_{i=1}^{r} \sum_{j=1}^{k} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

$x^2 = 93.25$

Critical value of independence at the .05 level for 20df = 31.41

* Denotes significant difference

Table 3

Chi Square Test of Independence
Between Placement Option and
Instructional Approach

Placement Option

Instructional Approach	a_1	a_2	a_3	a_4	a_5	a_6	N
b_1	n46, 43.96	n67, 52.20*	n96, 115.92	n20, 27.72	n29, 29.88	n31, 18.72	289
b_2	n19, 25.86	n36, 30.99	n61, 68.83	n24, 16.46	n26, 17.74*	n5, 11.12	171
b_3	n18, 11.80	n10, 14.14	n22, 31.39	n10, 7.51	n11, 7.51	n7, 5.07	78
b_4	n39, 39.78	n32, 47.67*	n143, 105.86*	n23, 25.31	n17, 25.31	n9, 18.00*	263
N	122	145	322	77	83	52	803

$$x^2 = \sum_{i=1}^{r} \sum_{j=1}^{k} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

$x^2 = 67.96$

Critical value of independence at the .05 level for
15df = 24.99

* Denotes significant difference

Table 4

Chi Square Test of Independence Between Geographical Area and Instructional Approach

Geographical Area

Instructional Approach	a_1	a_2	a_3	a_4	a_5	N
b_1	n34, 33.82	n60, 79.97*	n31, 26.54	n116, 107.55	n39, 35.16	280
b_2	n26, 13.97*	n56, 50.02	n18, 16.60	n47, 67.26*	n28, 21.99	175
b_3	n14, 10.15	n29, 24.02	n8, 7.75	n26, 32.30	n6, 10.56	83
b_4	n23, 32.95	n85, 77.99	n18, 25.89	n120, 104.89	n28, 34.29	274
N	97	230	75	309	101	803

$$x^2 = \sum_{i=1}^{r} \sum_{j=1}^{k} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

$x^2 = 40.58$

Critical value of independence at .05 level for 12df = 21.03

* Denotes significant difference

Table 5

Chi Square Test of Independence Between Categorical Type of Exceptionality and Instructional Approach

Categorical Type

Instructional Approach	a_1	a_2	a_3	a_4	a_5	a_6	a_7	a_8	N
b_1	n27, 39.24*	n41, 36.00	n28, 42.48*	n20, 21.6	n66, 39.96*	n59, 35.64*	n27, 38.88	n21, 34.2*	289
b_2	n23, 22.89	n32, 21.00	n20, 24.78	n6, 12.6	n12, 23.31*	n13, 20.79	n39, 22.68*	n24, 19.95	169
b_3	n10, 11.04	n3, 10.13	n19, 11.95	n13, 6.08*	n3, 11.24*	n6, 10.02	n7, 10.94	n21, 9.62*	82
b_4	n50, 35.83*	n25, 32.88	n52, 38.79*	n21, 19.72	n30, 36.49	n21, 32.55*	n47, 35.50	n29, 31.23	263
N	110	101	119	60	111	99	108	95	803

$$x^2 = \sum_{i=1}^{r} \sum_{j=1}^{k} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

$x^2 = 136.15$

Critical value of independence at .05 level for 21df = 32.67

* Denotes significant difference

Table 6

Chi Square Test of Independence
Between Geographical Area and
Categorical Type of Exceptionality

Geographical Area

Categorical Type of Exceptionality	a_1	a_2	a_3	a_4	a_5	N
b_1	n14, 13.58	n26, 30.5	n10, 9.72	n41, 40.48	n15, 13.72	106
b_2	n11, 12.70	n30, 28.52	n10, 9.09	n36, 37.86	n13, 12.83	100
b_3	n16, 14.72	n28, 33.04	n10, 10.53	n47, 43.86	n15, 14.86	116
b_4	n9, 7.42	n26, 16.66*	n3, 5.31	n14, 22.12	n7, 7.49	59
b_5	n13, 15.09	n35, 33.89	n8, 10.80	n50, 44.98	n12, 15.24	118
b_6	n14, 13.33	n26, 28.52	n10, 9.09	n39, 37.86	n12, 12.83	100
b_7	n12, 12.45	n28, 29.9	n10, 9.54	n38, 39.73	n15, 13.46	105
b_8	n26, 30.5	n26, 28.34	n12, 8.91	n35, 37.11	n14, 12.57	99
N	102	225	73	300	103	803

$$x^2 = \sum_{i=1}^{r} \sum_{j=1}^{k} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

$x^2 = 17.11$

Critical value of independence at .05 level for
28df = 41.34

* Denotes sifnigicant difference

APPENDIX C

Rank Order of Cells in Significant x^2 Tests

Table 7

Rank Order of Cells that have Accounted for the Greatest Shared Variance (Placement-Categorical Type)

Cell	Shared Variance	Rank Order
31	35.32	1
58	20.48	2
26	20.45	3
25	16.24	4
55	15.96	5
64	13.07	6
35	12.40	7
66	11.51	8
15	11.27	9
24	10.83	10

Table 8

Rank Order of Cells that have Accounted for the Greatest Shared Variance (Placement-Geographical Area)

Cell	Shared Variance	Rank Order
13	23.28	1
14	18.10	2
23	12.13	3
12	7.24	4
21	6.80	5
15	4.68	6
24	4.46	7
22	2.87	8
31	1.85	9
36	1.13	10

Table 9

Rank Order of Cells that have Accounted for the Greatest Shared Variance (Placement-Instruction)

Cell	Shared Variance	Rank Order
43	13.03	1
16	8.06	2
42	5.15	3
46	4.50	4
12	4.20	5
25	3.85	6
24	3.45	7
13	3.42	8
26	3.37	9
31	3.26	10

Table 10

Rank Order of Cells that have Accounted for the Greatest Shared Variance (Instruction-Geographical Area)

Cell	Shared Variance	Rank Order
21	10.36	1
24	6.10	2
12	4.50	3
41	3.00	4
44	2.47	5
43	2.40	6
35	1.97	7
25	1.64	8
31	1.46	9
32	1.03	10

Table 11

Rank Order of Cells that have Accounted for the Greatest Shared Variance (Instruction-Categorical Type)

Cell	Shared Variance	Rank Order
15	15.69	1
16	15.31	2
38	13.46	3
27	11.74	4
34	7.88	5
35	6.04	6
41	5.60	7
25	5.49	8
18	5.09	9
13	4.94	10